AMENDMENTS TO THE CLAIMS

Please cancel claims 52, 56, and 61, and amend claims 1, 10, 15, 24, 31, 34, 37, 40, 46,

49, 55, and 58, without acquiescence to the basis of the rejections stated in the Office Action,

and without prejudice to pursue the original claims in related application(s), as follow. A

complete listing of the claims is provided below.

1.   (Currently Amended) A method of performing physiological gating in a medical

procedure, wherein the method is at least partially performed using a processor, comprising:

        acquiring a sequence of images, the sequence of images comprises at least a first image

and a second image of a target region;

        determining a first composite image based at least in part on the first and second images;

and

        gating a medical procedure based at least in part on the first composite image, wherein

~~one of the first and second images is a real-time image with respect to~~ the act of gating the

medical procedure is performed in real time using the processor.

2.   (Original) The method of claim 1, wherein the determining comprises subtracting the first

image from the second image.

3.   (Original) The method of claim 1, further comprising determining a first value associated

with a contrast of the first composite image.

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4.   (Original) The method of claim 3, wherein the gating the medical procedure is performed based at least on the first value.

5.   (Original) The method of claim 4, wherein the gating comprises de-activating a radiation beam when the first value is above a prescribed threshold value.

6.   (Original) The method of claim 1, wherein the medical procedure comprises a radiation treatment procedure.

7.   (Original) The method of claim 1, further comprising:

acquiring a third image of the target region;

determining a second composite image based on the second and third images; and

gating the medical procedure based on the second composite image.

8.   (Original) The method of claim 1, wherein the sequence of images are fluoroscopic images.

9.   (Original) The method of claim 1, wherein the sequence of images are real-time images created during a session.

10.   (Currently Amended) A system for performing physiological gating in a medical procedure, comprising:

means for acquiring a sequence of images, the sequence of images comprises at least a first image and a second image of a target region;

means for determining a first composite image based at least in part on the first image and the second image; and

means for gating a medical procedure <u>in real time</u> based at least in part on the first composite image~~, wherein one of the first and second images is a real-time image with respect to the gating performed by the means for gating the medical procedure~~.

11.   (Original) The system of claim 10, further comprising means for determining a first value associated with a contrast of the first composite image.

12.   (Original) The system of claim 11, wherein the means for gating the medical procedure performs the gating based at least on the first value.

13.   (Original) The system of claim 12, wherein the means for gating comprises means for deactivating a radiation beam when the first value is above a prescribed threshold value.

14.   (Original) The system of claim 10, wherein the medical procedure comprises a radiation treatment procedure.

15.   (Currently Amended) A computer readable medium having a set of stored instructions, the execution of which by a processor causes at least a portion of a process to be performed, the process comprising:

acquiring a sequence of images, the sequence of images comprises at least a first image and a second image of a target region;

determining a first composite image based at least in part on the first and second images; and

gating a medical procedure based at least in part on the first composite image, wherein ~~one of the first and second images is a real-time image with respect to~~ the act of gating the medical procedure is performed in real time using the processor.

16.   (Original) The computer readable medium of claim 15, wherein the determining comprises subtracting the first image from the second image.

17.   (Original) The computer readable medium of claim 15, wherein the process further comprising determining a first value associated with a contrast of the first composite image.

18.   (Original) The computer readable medium of claim 17, wherein the gating the medical procedure is performed based at least on the first value.

19.   (Original) The computer readable medium of claim 18, wherein the gating comprises de-activating a radiation beam when the first value is above a prescribed threshold value.

20.   (Original) The computer readable medium of claim 15, wherein the medical procedure comprises a radiation treatment procedure.

21.   (Original) The computer readable medium of claim 15, wherein the process further comprising:

acquiring a third image of the target region;

determining a second composite image based on the second and third images; and

gating the medical procedure based on the second composite image.

22.   (Original) The computer readable medium of claim 15, wherein the sequence of images are fluoroscopic images.

23.   (Original) The computer readable medium of claim 15, wherein the sequence of images are real-time images created during a session.

24.   (Currently Amended) A method of performing a medical procedure, wherein the method is at least partially performed using a processor, comprising:

providing a plurality of templates, each of the templates having an image and treatment data, wherein the treatment data comprises ~~radiation treatment data~~ one or more parameters for controlling an operation of a radiation machine, and wherein each of the plurality of templates corresponds to a phase of a physiological cycle;

acquiring an input image;

registering the input image with one of the templates, wherein the act of registering is

performed using the processor; and

performing a medical procedure based at least in part on the treatment data of the one of

the templates that is registered with the input image.

25.   (Original) The method of claim 24, wherein the registering comprises selecting a

template from the plurality of templates that best matches an image in the input image.

26.   (Original) The method of claim 24, further comprising enhancing a moving object in the

input image.

27.   (Original) The method of claim 26, wherein the enhancing comprises determining a

composite image of previously acquired input images.

28.   (Original) The method of claim 27, wherein the determining a composite image

comprises performing an image averaging on the previously acquired input images.

29.   (Original) The method of claim 27, wherein the enhancing further comprises subtracting

the composite image from the input image.

30.   (Canceled)

31.   (Currently Amended) The method of claim 24, wherein the ~~radiation treatment data~~

~~comprises~~ one or more parameters comprise one or a combination of beam-on signal, beam-off

signal, beam-on duration, beam shape data, and dosage data.

32.   (Original) The method of claim 24, wherein the medical procedure comprises directing a

radiation beam to an object.

33.   (Original) The method of claim 32, wherein the performing the medical procedure

comprises adjusting a delivery of the radiation beam based on the treatment data.

34.   (Currently Amended) A system for performing a medical procedure, comprising:

        means for providing a plurality of templates, each of the templates having an image and

treatment data, wherein the treatment data comprises ~~radiation treatment data~~ one or more

parameters for controlling an operation of a radiation machine, and wherein each of the plurality

of templates corresponds to a phase of a physiological cycle;

        means for acquiring an input image;

        means for registering the input image with one of the templates; and

        means for performing a medical procedure based at least in part on the treatment data of

the one of the templates that is registered with the input image.

35.   (Original) The system of claim 34, wherein the means for registering comprises means

for selecting a template from the plurality of templates that best matches an image in the input

image.

36.   (Original) The system of claim 34, further comprising means for enhancing a moving

object in the input image.

37.   (Currently Amended) The system of claim 34, wherein the ~~radiation treatment data~~

~~comprises~~ one or more parameters comprise one or a combination of beam-on signal, beam-off

signal, beam-on duration, beam shape data, and dosage data.

38.   (Original) The system of claim 34, wherein the means for performing a medical

procedure comprises means for directing a radiation beam to an object.

39.   (Original) The system of claim 38, wherein the means for directing a radiation beam

comprises means for adjusting a delivery of the radiation beam based on the treatment data.

40.   (Currently Amended) A computer readable medium having a set of stored instructions,

the execution of which by a processor causes at least a portion of a process to be performed, the

process comprising:

        providing a plurality of templates, each of the templates having an image and treatment

data, wherein the treatment data comprises ~~radiation treatment data~~ one or more parameters for

controlling an operation of a radiation machine, and wherein each of the plurality of templates

corresponds to a phase of a physiological cycle;

acquiring an input image;

registering the input image with one of the templates, wherein the act of registering is

performed using the processor; and

performing a medical procedure based at least in part on the treatment data of the one of

the templates that is registered with the input image.

41.   (Original) The computer readable medium of claim 40, wherein the registering comprises

selecting a template from the plurality of templates that best matches an image in the input

image.

42.   (Original) The computer readable medium of claim 40, wherein the process further

comprising enhancing a moving object in the input image.

43.   (Original) The computer readable medium of claim 42, wherein the enhancing comprises

determining a composite image of previously acquired input images.

44.   (Original) The computer readable medium of claim 43, wherein the determining a

composite image comprises performing an image averaging on the previously acquired input

images.

45.   (Original) The computer readable medium of claim 43, wherein the enhancing further comprises subtracting the composite image from the input image.

46.   (Currently Amended) The computer readable medium of claim 40, wherein ~~the radiation treatment data comprises~~ one or more parameters comprise one or a combination of beam-on signal, beam-off signal, beam-on duration, beam shape data, and dosage data.

47.   (Original) The computer readable medium of claim 40, wherein the medical procedure comprises directing a radiation beam to an object.

48.   (Original) The computer readable medium of claim 47, wherein the performing the medical procedure comprises adjusting a delivery of the radiation beam based on the treatment data.

49.   (Currently Amended) A method of performing physiological gating in a medical procedure, wherein the method is at least partially performed using a processor, comprising:

    providing a template;

    acquiring an input image of a target region;

    registering the input image with the template, wherein the registering comprises selecting the template from a plurality of templates that best matches an image in the input image;

    determining a position of the target region based at least in part on the registering; and

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gating a medical procedure <u>using the processor</u> based at least in part on the determined position of the target region.

50. (Original) The method of claim 49, further comprising enhancing a moving object in the input image.

51. (Original) The method of claim 50, wherein the enhancing comprises subtracting an average of previously acquired input images from the input image.

52. (Canceled)

53. (Original) The method of claim 52, wherein the determining the position of the target region comprises determining a position of the image in the input image that best matches with the template.

54. (Original) The method of claim 49, wherein the medical procedure comprises a radiation treatment, and the gating comprises activating or deactivating a radiation beam based on the determined position of the target region.

55. (Currently Amended) A system for performing physiological gating in a medical procedure, comprising:

means for providing a template;

means for acquiring an input image of a target region;

means for registering the input image with the template, wherein the means for

registering comprises means for selecting the template from a plurality of templates that best

matches an image in the input image;

means for determining a position of the target region based at least in part on the

registering; and

means for gating a medical procedure based at least in part on the determined position of

the target region.

56.   (Canceled)

57.   (Original) The system of claim 55, wherein the medical procedure comprises a radiation

treatment, and the means for gating comprises means for activating or deactivating a radiation

beam based on the determined position of the target region.

58.   (Currently Amended) A computer readable medium having a set of stored instructions,

the execution of which by a processor causes at least a portion of a process to be performed, the

process comprising:

providing a template;

acquiring an input image of a target region;

registering the input image with the template, wherein the registering comprises selecting

the template from a plurality of templates that best matches an image in the input image;

determining a position of the target region based at least in part on the registering; and

gating a medical procedure <u>using the processor</u> based at least in part on the determined

position of the target region.

59.   (Original) The computer readable medium of claim 58, wherein the process further

comprising enhancing a moving object in the input image.

60.   (Original) The computer readable medium of claim 59, wherein the enhancing comprises

subtracting an average of previously acquired input images from the input image.

61.   (Canceled)

62.   (Original) The computer readable medium of claim 58, wherein the determining the

position of the target region comprises determining a position of the image in the input image

that best matches with the template.

63.   (Original) The computer readable medium of claim 58, wherein the medical procedure

comprises a radiation treatment, and the gating comprises activating or deactivating a radiation

beam based on the determined position of the target region.

64.   (Previously Presented) The method of claim 1, wherein the act of acquiring the sequence

of images is performed during a treatment session.

65.   (Previously Presented) The system of claim 10, wherein the means for acquiring the

sequence of images is configured to acquire the sequence of images during a treatment session.

66.   (Previously Presented) The computer readable medium of claim 15, wherein the act of

acquiring the sequence of images is performed during a treatment session.